



Proposed Calculation of Off-Cycle Emissions for MOBILE6

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What are Off-Cycle Emissions?

“Off-Cycle” emissions are the portion of actual in-use emissions which will be affected by the Supplemental FTP regulations.

Does not include air conditioning effects.

MOBILE6 Exhaust Emissions

- Basic running exhaust emission rates do not include off-cycle emissions.
- MOBILE6 speed adjustments include off-cycle emission effects.
- The Supplemental FTP will reduce off-cycle emissions from future vehicles.

Why do we need Off-Cycle Emissions?

The portion of emissions identified as Off-Cycle emissions will be reduced in vehicles subject to the Supplemental FTP regulations.

Only vehicles with Tier 1 or better emission standards need a calculation of the off-cycle emission estimate.

Assumptions

- The emission difference between the FTP driving cycle (LA4) and average in-use driving is off-cycle emissions.
- Off-cycle emissions are constant.

Average In-Use Driving Emissions

- Emission estimates based on the same sample and driving cycles used for speed correction factors.
- Weighting of facility cycle results based on national average vehicle miles traveled.

National Average Vehicle Miles Traveled

Driving Cycle	Weight	Driving Cycle	Weight
Freeway 63.2	0.0062	Arterial/Collector 24.8	0.1944
Freeway 59.7	0.1999	Arterial/Collector 19.2	0.0175
Freeway 52.9	0.1548	Arterial/Collector 11.6	0.0058
Freeway 30.5	0.2344	Arterial/Collector 7.1	0.0135
Freeway 18.6	0.0109	Local Roadways 12.9	0.1304
Freeway 13.1	0.0025	Freeway Ramps 34.6	0.0298
		All	1.0000

Tier 1 Vehicle Results

(grams per mile)	THC	CO	NOx	NMHC
Average LA4	0.033	0.795	0.180	0.019
Weighted Cycles	0.048	1.729	0.274	0.035
Off-Cycle Difference	0.015	0.934	0.094	0.016

Proposal for Off-Cycle Emissions for LEVs

- Off-cycle emissions need to be adjusted to account for difference in the standards.
- Assuming Tier 1 off-cycle is the same as LEV off-cycle may be too large.
- A ratio adjustment (based on emissions) may make off-cycle too small.